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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,269	11/14/2003	Vernon R. Brethour	28549-198910	7955
26694	7590	03/03/2006	EXAMINER	
VENABLE LLP P.O. BOX 34385 WASHINGTON, DC 20045-9998			DEPPE, BETSY LEE	
			ART UNIT	PAPER NUMBER
			2637	

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/712,269

Applicant(s)

BRETHOUR ET AL

Examiner

Betsy L. Deppe

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 22 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 6-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed December 22, 2005 have been fully considered but they are not persuasive. In response to applicant's argument on page 13 that Bi et al. requires a rake training period to determine the initial thresholds, the thresholds in Bi et al. relate to signal quality (such as signal-to-noise ratio). (See column 6, lines 51-53) Initial thresholds that relate to signal quality are usually not based on a training period but are set according to system or design specifications. Since initial thresholds for signal quality measurements do not necessarily require a rake training period and Bi et al. does not specifically disclose using a rake training period to determine these initial threshold values, the applicant's argument that a rake training period is **required** is not persuasive. Therefore, Bi et al. in combination with the other references teach the claimed inventions.

### ***Drawings***

2. The drawings were received on December 22, 2005. These drawings are acceptable.

### ***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 6-11, 19-24, 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono (US Patent No. 6,157,687 cited in the Office Action mailed December 13, 2004) in view of Bi et al. (US Patent No. 6,515,977 B2 cited in the Office Action mailed July 22, 2005).

5. With regard to claims 6 and 19, Ono teaches sampling circuitry (30) for sampling a plurality of impulse radio signal reflections (i.e. "paths") and figure of merit determination circuitry (31). (See the figure; column 3, line 35 - column 4, line 7 and column 4, lines 46-60) However, Ono does not disclose that the figure of merit is dynamically determined.

Bi et al. teaches determining a figure of merit (i.e. the indication of signal quality) dynamically in the process of assigning and de-assigning fingers in a rake receiver. (See column 5, line 64 - column 6, line 62) Since there is no training period, it is implicit that the determination is dynamic. It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Bi et al. to that of Ono in order to quickly adapt to changes in signal quality thereby improving data recovery.

6. With regard to claims 7 and 20, Ono in view of Bi et al. discloses the claimed invention since it is inherent/implicit that the output of the rake synthesizer is demodulated in order to recover the transmitted signal.

7. With regard to claims 8, 9, 21 and 22, Ono in view of Bi et al. discloses excluding samples based on at least one figure of merit (SIR). (See Ono, the abstract and column 5, lines 30-50)

8. With regard to claims 10, 11, 23 and 24, Ono in view of Bi et al. discloses updating the figure of merit and performing data demodulation computation based on an updated one of the at least one figure of merit. (See Ono, column 1, lines 53-58) It is inherent/implicit that the SIR is updated.

9. With regard to claim 32, Ono teaches receiving a plurality of impulse radio signal reflections (i.e. "paths"), sampling the plurality of impulse radio signal reflections (30), determining a plurality of figures of merit (SIR in 31), determining a best figure of merit (i.e. "threshold") and determining whether to exclude one of said plurality of rake teeth. (See the figure, abstract, column 3, line 35 - column 4, line 7 and column 4, lines 46-60; column 5, lines 30-57) However, Ono does not disclose that the figure of merit is dynamically determined.

Bi et al. teaches determining a figure of merit (i.e. the indication of signal quality) dynamically in the process of assigning and de-assigning fingers in a rake receiver. (See column 5, line 64 - column 6, line 62) Since there is no training period, it is implicit that the determination is dynamic. It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Bi et al. to that of Ono in order to quickly adapt to changes in signal quality thereby improving data recovery.

10. With regard to claim 33, Ono in view of Bi et al. discloses the claimed invention since it is inherent/implicit that the output of the rake synthesizer is demodulated in order to recover the transmitted signal.

11. Claims 12-16 and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono in view of Bi et al. as applied to claims 6 and 19, respectively above, and further in view of Miura (US Patent No. 6,658,046 B1 cited in the Office Action mailed July 22, 2005).

12. With regard to claims 12 and 25, Ono in view of Bi et al. disclose the claimed invention except for a time offset confined to a corresponding rake tooth placement zone. Miura discloses that each rake finger correlates the received signal with a despreading code with a timing offset value so that the offset values of all rake fingers are different (i.e. the time offset is confined to "corresponding rake tooth placement zone"). (See column 1, lines 17-24) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Miura with that of Ono in view of Bi et al. in order to quickly establish synchronization.

13. With regard to claims 13 and 26, Ono in view of Bi et al. and Miura disclose the claimed invention since the offset values are varied until correct timing is achieved and correct timing is achieved when a peak correlation value is detected.

14. With regard to claims 14 and 27, Ono in view of Bi et al. and Miura disclose the claimed invention. It is implicit/inherent that the time offset is placed to maximize the

energy when the correct timing value for the rake finger is achieved. When there is synchronization, the correlation result is at a peak or a maximum.

15. With regard to claims 15 and 28, Ono in view of Bi et al. and Miura disclose the claimed invention including determining the time offset dynamically. (See Miura, column 1, lines 17-30)

16. With regard to claims 16 and 29, Ono in view of Bi et al. and Miura disclose the claimed invention including determining the time offsets for two or more of the rake teeth in parallel. (See Miura, column 1, lines 17-30)

17. Claims 17, 18, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono in view of Bi et al., as applied to claims 6 and 19, respectively, above, and further in view of Saints (US Patent No. 5,903,554 cited in the Office Action mailed December 13, 2004). Ono in view of Bi et al. discloses the claimed invention except for determining a figure of merit based on variance or an approximation of the variance of the samples.

Figure 3 of Saints discloses calculating a noise value based on variance (step 110) and Figure 4 of Saints teaches estimating (i.e. "approximating") the noise value based on variance (step 152). (See column 4, lines 6-15 and column 5, line 66 - column 6, line 13). It would have been an obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to use either of the noise calculations taught by Saints in the SIR estimator of Ono since the method of determining the noise does not affect the overall functionality or operation of Ono's rake


receiving system. Whether a particular calculation method is used depends upon factors such as desired accuracy of the calculation versus power consumption/speed.

### ***Conclusion***

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betsy L. Deppe whose telephone number is (571) 272-3054. The examiner can normally be reached on Monday, Tuesday and Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Betsy L. Deppe  
Primary Examiner  
Art Unit 2637



